DOCUMENT RESUME

ED 170 989 EC 114 810

AUTHOR Naron, Nancy K.; And Others
TITLE The Prevention of Learning Disabilities Before School: Results of a Pilot Program.
SPONS AGENCY Chicago Board of Education, Ill. Dept. of Research and Evaluation.
PUB DATE Apr 79
NOTE 15p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Aural Learning; Intervention; *Learning Disabilities; *Preschool Education; *Prevention; *Program Effectiveness; *Program Evaluation; Visual Learning
IDENTIFIERS *At Risk (for Handicap)

ABSTRACT

A pilot program was conducted to determine the efficacy of providing 32 preschoolers at high risk for learning disabilities with structured, individualized instruction to supplement their regular kindergarten experiences. Ss were selected on the basis of developmental screening and diagnostic tests. Ss were enrolled in the V-M (visual input-motor response) or language (auditory input-verbal response) skill group. After attending the program for 1 hour a day, 4 days a week, for 3 months, Ss made significant gains as compared to a control group on the basis of pre and post test scores. Large gains were noted by children whose parents were most involved in the program. (CL)

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The Prevention of Learning Disabilities Before School: Results of a Pilot Program

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Paper presented at the annual meeting of the
American Educational Research Association,
San Francisco, April, 1979.

Session #1808

EC114690

AERA 1979

5/79

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Author(s): Naron, N.K., Katz, N., Murray, C.G., Rivera, C.D., & Washington, T.
Corporate Source (if appropriate): Education of Sponsor
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The Prevention of Learning Disabilities Before School: Results of a Pilot Program

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Abstract

A pilot program was conducted to determine the efficacy of providing "high-risk" preschoolers with structured, individualized instruction to supplement their regular prekindergarten experiences. Following a screening and diagnostic procedure, 32 children were enrolled in the Chicago EARLY Project (CEP) for remediation in either the visual-motor or language skill area. They attended CEP for one hour a day, four days a week, for three months. Pre- and post-tests administered to the CEP children and to a control group of 17 children (selected for the program but not enrolled) indicated significant gains for the CEP children in both skill areas. Recommendations for the future are suggested.

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Introduction

The Chicago EARLY Project (Early Assessment and Remediation LaboratorY) is a research and development study with two goals: (1) to develop assessment procedures to identify preschool-age children who are likely to have learning problems, and (2) to develop remediation procedures which will ameliorate those potential learning problems prior to elementary school. The attainment of the first objective, i.e., the development of an identification procedure, has been reported earlier (Naron, 1977, 1978) and includes the development and validation of the Chicago EARLY Developmental Test. The present paper reports the results of a pilot program aimed at the second objective: the remediation of potential learning problems.

The development of the program for preschoolers with potential learning disabilities was based on two important conceptualizations: one concerned with the form (or setting) of the program, the other concerned with the content of the program.

In terms of form, the program was conceived as supplementary to other preschool programs. This is because the target children are not severely

handicapped, but rather have mild learning problems. Therefore, the setting for the program was equivalent in concept to a resource room: the children continued to attend any regular preschool program in which they were enrolled and received the EARLY program one hour each morning. This aspect of the program is important; it is in keeping with the stipulation of P.L. 94-142 which requires that the special child be educated in the "least restrictive environment."

In terms of content, the program is based on an information-processing model which relates the input modality and the response modality of the learning tasks to the ability areas of the child. In this way, the curriculum is geared toward the individual child's weak area, defined as either visual input-motor response (V-M) in nature, or auditory input-verbal response (Language). The program content specifies sequential skill-based objectives and appropriate activities within each skill area for both parents and teachers. These components are in keeping with past research (Bronfenbrenner, 1975) which indicates that the two most important factors for long-term effects of a preschool program are (1) a structured curriculum, and (2) parent involvement.

Procedure

The Chicago EARLY Developmental Test was administered to a sample of 922 preschool-age children. Based on the results of this screening, 224 children were given a series of diagnostic tests, selected to tap both the visual-motor and language skill areas. The battery of tests included the Leiter International Performance Scale (a non-verbal measure), the verbal part of the WPPSI, the Visual-Motor Integration Test, the Del Rio Language Screening Test, and several staff-developed measures. For each child who received the

diagnostic testing, a profile of scores was developed to highlight discrepancies between the two major skill areas. Using all the screening and diagnostic information for each child, one of four decisions was made: (1) the child was not likely to have a problem, (2) the child showed a slight weakness; this information with remediation suggestions was relayed to the child's regular teacher, (3) the child indicated the possibility of a severe problem; a referral was made for further evaluation; or (4) the child indicated a specific weak area to be remediated; enrollment in the Chicago EARLY Project (CEP) was recommended. Of the 216 children who completed the full diagnostic battery, 75 were found to have no problem, 27 had a slight weakness which was reported to their teacher, 40 were referred for further evaluation, and 74 were recommended for placement in CEP. (The number of "no problem" children was high because the selection of children for diagnosis included a wide range of screening test scores for purposes of cross-validation.)

Of the 74 recommended for CEP placement, 32 children were actually enrolled in the program. Of these, 14 were enrolled in the V-M classroom, 17 were enrolled in the Language classroom, and one child (who was in no other preschool and was low in both areas) was enrolled in both sessions. The children attended a 1¼ hour session each day, four days a week, for approximately 3 months (from March to June, 1978). The children were brought to the CEP center by bus, with necessary scheduling arrangements made with both the children's parents and their other preschool programs. One day a week was established as Parents' Day, when the parents were encouraged to accompany their children to the center.

The children were grouped so that the ratio of student to teacher was never greater than 5 to 1. The parents observed and participated in the classroom

activities, and received home activity suggestions which the teachers modeled for them with an explanation of the purpose of the activity. The members of the teaching staff all had graduate degrees in early childhood and/or special education, and were aided by student interns completing a graduate practicum in early childhood special education.

At the end of the program, 31 of the CEP children were administered three of the diagnostic measures. These tests were also administered to 17 of the children who were recommended for CEP placement but did not enroll for various reasons (i.e., a non-randomly selected control group).

Subjects

All the children in the study were from the one school district in Chicago that is most representative of the city's school population in terms of ethnic background and poverty level. A concerted effort was made to screen as many 3-5 year olds in that district as possible, both those enrolled in preschool programs and those not in any program.

Of the 922 children screened, 446 were male and 476 were female. In terms of race, 218 were white, 567 black, 98 Spanish, and 37 of other background. Of the CEP children, 18 were male and 14 were female; 5 were white, 23 black, and 4 Spanish. Of the control children, 7 were male and 10 were female; 16 were black and 1 Spanish.

Description of the Curriculum

The Chicago EARLY Developmental Curriculum is divided into three skill areas: Body Image, Visual-Motor Abilities, and Language. The area of Body Image incorporates both motor and language activities, and is viewed as preliminary to both the Visual-Motor and Language curricula. This arrangement

is based on the premise that a child's positive self-concept is a precursor to all later learning, and that experiences with body image and spatial relationships are basic to a child's self-concept. The Visual-Motor Curriculum is directed at the child with deficits in fine motor and/or visual discrimination skills. It incorporates the content areas of color, shape, size, familiar objects, and pre-arithmetic, and proceeds from basic discrimination (matching) skills to higher-level conceptual skills. The Language Curriculum is aimed at increasing a child's communication skills, and includes work on both the receptive understanding of langauge (i.e., comprehension), and the expressive counterpart (i.e., speaking). The Language Curriculum proceeds from basic auditory discrimination skills through simple sentence-building to interpretive, reasoning skills.

For each of these three areas, the EARLY Developmental Curriculum includes a set of sequential, behavioral objectives and a matching set of activities designed to teach the objectives. The program includes not only classroom activities corresponding to each behavioral objective but also parent (home) activities appropriate to each objective. Whenever possible, the classroom teacher is to model these activities for the parent prior to the parent's conducting the activity at home.

The sequential (developmental) approach upon which the program is based derives from the notion that earlier, simpler skills build the foundation for those that are more complex. Using such an ordered list of skills gives the teacher a great deal of flexibility and control. In our program, the EARLY Developmental Test is linked directly to the curriculum. For each test item that a child may fail, the teacher is directed to the appropriate

curriculum objective. As a result, the teacher can pinpoint where in the skill-list a child's ability is inadequate and can begin teaching at that point. If that level is too difficult for the child, the teacher can move backward in the list of objectives until the child's present level of success is ascertained.

Certain skills are not defined specifically by the curriculum but are viewed as by-products of the program. These include overall study skills, such as paying attention, as well as self-help and socialization skills. Furthermore, the affective benefit of a positive self-image should occur as a result of the child working at his own level of competence and thereby regularly encountering success.

The compilation of developmental objectives for the program was based on many sources of developmental norms (e.g., Goldman & Martin, 1971) as well as the experience and intuition of the authors. The activities accompanying the objectives were adapted from many different published programs (e.g., Saturday School, MWM Program for Developing Language Abilities, Peabody Language Kit, Learning Language at Home). The resulting Chicago EARLY Developmental Curriculum differs from those previous programs in that (1) it is developed in a special education framework (i.e., it is not aimed at simply a disadvantaged population), (2) it includes the areas of both visual-motor and language skills, and (3) it is independent of any specific diagnostic tests (i.e., a teacher who has minimum information about a child can find the level of the child and proceed teaching from there).

Each of the activities in the curriculum is designed to be a 15-30 minute activity for a group of no more than 5 children who share similar educational needs. Therefore, the curriculum can be utilized in a wide variety of

settings. It can be implemented into a regular preschool classroom and used during "small group" time. It can be used as the foundation for a resource room or dual enrollment situation. Or, it can be used as the guide for a self-contained classroom program. The structured sequential nature of the program and the parent involvement component are the two most important aspects of the program, and they can easily be incorporated into any of these settings.

Results

Even though the purpose of the pilot program was to develop and pilot the intervention materials rather than to evaluate them, data were collected to obtain a preliminary assessment of the program's effectiveness. At the end of the program, 31 of the EARLY children were administered three tests which had been included in the diagnostic evaluation of the children prior to their enrollment. Simultaneously, these tests were administered to 17 children who had been selected for EARLY placement but for various reasons had not enrolled (i.e., a non-randomly selected control group). One test, the Developmental Test of Visual-Motor Integration (VMI), was chosen to measure perceptual-motor skills. The other two tests, the Vocabulary and Similarities subtests of the WPPSI, were chosen to assess language skills. In this way, pre- and post-test data were obtained for the EARLY children and for a comparison group on tests which measure the skills taught in the program.

It is important to note that the results of the pilot program are necessarily inconclusive. The experimental treatment (i.e., the Chicago EARLY Developmental Curriculum) was conducted for a very short time (only 3 months) and with a rather small sample. Furthermore, the experimental and control groups were not randomly selected, and may differ on important characteristics such as parent concern. Nevertheless, the results of the program as measured by the three test instruments are quite encouraging. The

means for the three pre-and post-measures for each of the groups are listed in Table 1.

Table 1

Means of the Pre-and Post-Test Scores for the EARLY Children and a Control Group

	Pre-Test		Post-Test	
Test	Exp. (EARLY)	Control	Exp. (EARLY)	Control
VMI	3.74	4.00	5.26	4.47
WPPSI Vocabulary	7.52	7.65	12.35	10.23
WPPSI Similarities	5.45	6.47	9.06	7.53

Tests of significance on the post-test scores indicated a significant difference between the groups only on the Vocabulary test, $t(46) = 1.78$, $p < .05$. But on all three pre-test measures, the experimental group was behind the control group, thereby biasing the post-test analysis against the experimental group (Campbell & Stanley, 1963). When tests of significance were conducted on the gain scores, the EARLY children scored significantly higher gains than did the controls on the VMI, $t(46) = 2.12$, $p < .05$, and on the Similarities test, $t(46) = 2.06$, $p < .05$.

When the experimental group is divided into those receiving the Visual-Motor Curriculum and those receiving the Language Curriculum, the results of the differential treatments are apparent. The mean gain on the VMI for the Visual-Motor children is 1.73, compared to 1.52 for the overall EARLY group. Similarly, the mean gain on the WPPSI Vocabulary for the Language children is 5.06, compared to 4.83 for the overall EARLY group.

One last variable was considered -- that of parent participation in the program. Parents were considered to have high parent participation if they

accompanied their child to the center on Parents' Day on three or more occasions. Nine of the children's parents met this criterion. The mean of the gains that these children demonstrated was 6.6 on the Vocabulary subtest and 5.5 on the Similarities subtest, as compared to 4.1 on Vocabulary and 2.8 on Similarities for the children with low parent participation. Such large gains on these tests by the children whose parents were most involved in the program indicate the impact that is possible when concerned parents are given specific suggestions for home interactions with their children.

Summary of the Intervention Program Results

The results of this pilot program, although preliminary, are positive and encouraging. The study illustrates the efficacy of providing preschool-age children with structured, individualized instruction to supplement their regular preschool experiences. Future research must evaluate such a program over a longer period of time, with a greater number of children, and in a variety of settings.

Educational Implications

The educational implications of this study are far-reaching. By all indications, it is possible to ameliorate potential learning problems while the children are still quite young, and in regular preschool situations. The benefits which can be derived from early assessment and remediation are two-fold. The first and foremost benefit is to the individual child, who will hopefully avoid the feelings of frustration and inadequacy typically associated with failure. The second benefit is to the school system, which

will profit by the reduction in the number of children who will need special education services during their school years.

The results of this study lead to two recommendations for future practices in the area of early childhood special education. Both of these recommendations are related to the federal government's requirement to categorize children who receive special education services.

The first recommendation concerns the specific category of "learning disabilities," the category that the EARLY children fit. Such a categorization appears to be useful for neither educational planning nor research purposes. The problem lies in the fact that learning disabilities take different forms, defined in this study as visual-motor difficulties or auditory-verbal difficulties. Obviously, planning for the educational needs of these children requires different techniques and different emphases. It is simply not appropriate to teach all learning disabled children in the same manner.

Similarly for research purposes, it is much more useful to re-define the category of learning disabilities in terms of the children's modalities of strength and weakness than to analyze the group as a whole. Such a re-classification makes it possible to measure the effectiveness of the program with instruments which are <u>specific to the treatment</u> rather than general measures of achievement (Stodolsky, 1972). This is turn will avoid "washout" effects which can occur when children with different educational needs are statistically examined as one group instead of as differential treatment groups.

The second recommendation is concerned with the potential problem of early labeling. The results of the EARLY Program indicate that young children's learning difficulties can be remediated at a very early age. However, the labeling of these children as learning disabled could result in their placement in special education classes long past the time of need. Too many parents may avoid seeking special education services for their preschool-age children because they fear a label placed on their child which would follow the child throughout school. And yet, those services early may be just what the child needs to avoid the need for special education in later school years. The answer lies in the provision of special services for preschoolers with mild learning problems without a corresponding stigma attached and with mechanisms to routinely mainstream the children into regular kindergarten classes.

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